Incorporating ecological considerations into industrial design practice

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Thesis submitted for the award of Doctor of Philosophy
July 2013

Certificate of original authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Student :  (Johannes Behrisch)

Date: 17.07.2013

Acknowledgements

This thesis would not have been possible without the support of a number of people and institutions whom I would like to thank and acknowledge.

First of all, I would like to thank my principal supervisor Associate Professor Damien Giurco (Institute for Sustainable Futures, UTS) for his tireless academic and moral support. His warm and positive attitude combined with his intelligent and constructive way of providing feedback greatly enriched the arguments developed in this thesis. He also always took the time to provide encouragement and advice whenever I was facing a thesis crisis. Dr. Timothy Prior (ETH Zürich) as a co-supervisor was another great source of support during the second half of my candidature. He contributed very helpful pragmatic input on structuring and editing Chapters 4, 5, and 7. My second co-supervisor, Dr. Mariano Ramirez (UNSW), provided valuable feedback on the design-related aspects of this thesis, especially in Chapters 1 - 3.

The timely completion of my thesis was facilitated through the great institutional and moral support I received at UTS. First of all, I would like to acknowledge the postgraduate program coordinators at the Institute for Sustainable Futures (ISF), in particular Professor Cynthia Mitchell, Associate Professor Juliet Willets, Dr. Kumudini (Kumi) Abeysuriya and Suzanne Cronan. I also would like to express my gratitude towards my fellow PhD candidates who were always a source of encouragement and inspiration. The positive and familiar atmosphere within the ISF PhD community, the interesting and funny conversations as well as the social events greatly contributed to the enjoyment of being a PhD student at ISF. In particular I would like to thank Dena Fam, who was my first point of contact at ISF back in 2009; Nicole Thornton, who reviewed the first piece of writing I did in my candidature, and the members of my GAS (group for accountability and support): John McKibbin, Reza Memary, Bronwyn Cumbo, Eleanor Glenn, Tania Leimbach, Ariane Liu, Andrew Glover and Erica Olesson. The ISF staff was also very supportive in providing feedback and a great social atmosphere to work in. Finally, UTS also provided financial support by granting me both an IRS and a UTSP scholarship and two conference grants. The German Academic Exchange Service provided financial support during the first year of my candidature. In that regard, I would also like to thank Tobias Glaser, Stefan Koensgen (BMW), Professor Othmar Wickenheiser (University of Applied Science, Munich) for their support with the scholarship applications.

Linda Alila from The Expert Editor provided proofreading and editing services. Dr. Robyn Maddern from Research Assist gave me a helpful introduction to qualitative data analysis in NVivo.

I also would like to express my gratitude towards the three examiners of my thesis. Their comments and recommendations helped to further improve the clarity of the argument and the readability of the document.

There are a number of people who provided expert input and feedback, which informed different chapters of my thesis. The discussions with Professor Kees Dorst and Associate Professor Douglas Tomkin at the Designing Out Crime research centre (DOC) at UTS provided valuable input. Similarly, Roderick Walden, Cathy Lockhart and Berto Pandolfo at the School of Design at the Design Architecture and Building Faculty (DAB) at UTS gave relevant expert feedback on the design aspects of my thesis, as well as Adam Thorpe, Creative Director of the Design Against Crime Research Centre (UK). Berto Pandolfo and Cathy Lockhart enhanced my learning through offering me the opportunity to contribute to teaching. My brother-in-law, Robert Neuhauser, helped me structure my thoughts during the early stages of my candidature. Alison Norcott provided feedback regarding the de-identification of the research participants in the discussion chapters.

To increase the relevance of my findings for design practice, I also sought feedback from design practitioners throughout the research process: David Gravina at Digital Eskimo; my former work colleagues at Pilotfish, in particular Mark Nagel and my friends at Lumod Design.

I would also like to thank the directors and staff at IDE+ for understanding that I needed to balance PhD studies and work.

The empirical part of the research was possible through the generous support of the research participants. I would like to thank them for their time, honesty and the insights they provided. The UNSW students Jessica Tong and Joseph Louis Tan supported me with data search for the website review.

Finally, I want to thank my family for being supportive during this long and work-intensive time. I want to especially thank my partner Christiane for not only being understanding and providing moral support, but also for providing helpful feedback to the thesis structure.

I dedicate this thesis to my beloved father who passed away in 2011. I was in Australia and he in Germany but the experience of doing a PhD opened my eyes and heart for things that were important to him and that he wanted to share with me.

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Abbreviations

AT	Adaptive Theory
CEO	Chief Executive Officer
CfD	Centre for Design
DIA	Design Institute of Australia
GT	Grounded Theory
HCD / UCD	Human Centred Design / User Centred Design
ICSID	International Council of Societies of Industrial Design
IDC	Industrial design consultancy
LCA	Life Cycle Assessment
LCT	Life Cycle Thinking
PSS	Product Service System
RMIT	Royal Melbourne Institute of Technology
SHT	Strict Hypothesis Testing
SLCA	Social Life Cycle Assessment
SRD	Society for Responsible Design
UNEP	United Nations Environment Programme
USA	United States of America
VDID	Professional association of German industrial designers (Verband Deutscher Industrie Designer e.V.)

Abstract

Industrial designers play a pivotal role in the development of consumer products. Consumer products contribute significantly to society's ecological impact, which needs to be lowered. This thesis examines the role of industrial design practice in developing consumer products with low(er) ecological impacts by (i) expanding the concept of ecodesign and (ii) collecting evidence on its contemporary application in Australia. Ecodesign refers to both the integration of ecological considerations into commercial product development processes and their conversion into product designs. When practicing ecodesign, industrial designers must consider the entire life cycle of products—an approach termed *Life Cycle Thinking* (LCT).

This research proposes that industrial design practice allows two expansions to the traditional notion of ecodesign. Firstly, it can uncover new opportunities for creating value through eco-designed products by applying solution-focused thinking. *Solution-focused thinking* uses representations of tentative suggestions for product designs to explore responses of the context being designed for. Traditionally, ecodesign only applies *problem-focused thinking*—deductively analysing the status quo to establish requirements for how value can be created. This can result in a lock-in to incremental product-improvement. Secondly, industrial design practice can widen the range of interventions that convert ecological considerations into product designs towards manipulating how products are perceived and understood by consumers, namely, the *meanings* attached to products. Traditionally, ecodesign focuses too narrowly on *technical aspects* of product design and has failed to sufficiently represent influencing *product meanings*.

For this research project multiple-case study research was conducted, investigating the ecodesign practice of Australian industrial design consultancies (IDCs) and their clients. The theoretically developed notion of ecodesign was used to guide and structure the enquiry. Data was collected through content analysis of IDC-websites and sixteen interviews with ecodesign experts, representatives of IDCs and their clients. The empirical insights show that the proposed expansions to ecodesign are appropriate. They can support converting ecological considerations into product designs. In tandem, they can also help with exploring and potentially stimulating opportunities for products that offer new eco-friendly meanings to consumers, which they perceive as valuable. If industrial design practice can identify such opportunities, it can justify ecodesign—guided by LCT—as a value-adding element in the product development process.

In conclusion, industrial designers can contribute to reducing the negative ecological impact of society by embracing the expanded notion of ecodesign. Several factors need to align to enable this; most importantly, they need to practice ecodesign in collaboration with their clients.